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The *Theban Hercules* has the animal part of the brain sufficiently developed for health, but not for a *gourmand*, which he was not: the intellectual portion is not greatly inferior, but it lacks the sentiments of elevation and refinement in Ideality, Wonder and Wit; the moral region is of an average size, for he was not a savage; and the limbs in perfect correspondence, are large, strong, and well-proportioned, but neither fine in texture nor graceful in form.

Salvator Rosa's Conspiracy of Catiline presents not a well developed anterior lobe or coronal region in the whole group, being in accordance with the report of history, which says they were men weak in intellect, strong in animal passions, and sadly deficient in moral qualities.

The *Statue of Lysias the Greek Orator* in the Vatican. The head is well developed in the part giving readiness of perception and promptitude of thought, fitting the mind for action, showing great intellectual power, with a sufficiency of the coronal for amiability, and enough passion to give effect to the others. Limbs small, fine in texture.

Thorwaldsen's Christ. Large and beautifully proportioned moral and intellectual regions; a countenance of purest and grandest emotions; a pensive air of melancholy is suffused over the figure; the drapery is in accordance, arranged with consummate simplicity and grace; yet the arms and hands are so thick, short, and deficient in fineness and precision of form, as to be out of all harmony with the head and countenance, and could only belong to an inferior nature.

One other point demands our attention —Physiognomy as the result of Phrenological development; and it is on this account that a great artist needs to be, not a superficial, but a profound and deeply skilled phrenologist. By observation it has been learned how different faculties of the brain express themselves by instinctive looks, actions, and sounds, and the knowledge of these is the Science of Physiognomy. Different laughs, such as those of Destructiveness, Benevolence, and Self-esteem bring into play different muscles, which form varying lines on the face. And so with other faculties. The artist needs to know these; and how to modify the same type for repose, joy, sorrow, and so forth. He must also know the manifold expressions that will result from the reunion in different proportions of these faculties. Thus Self-esteem is hardly mistakable in expression when alone; but when united with Acquisitiveness, it gives an expression of cold grasping, penurious selfishness; but when with powerful Veneration, Conscientiousness, Benevolence, and Intellect, there will be a look of noble independence, self-reliance in the pursuit of truth, Justice, Religion, and Humanity; or in union with Firmness, Combativeness, and Destructiveness, there are manifestations of proud impetuosity, daring grandeur, and the contemptuous irascibility of Coriolanus. It is obvious such faculties find for ordinary observers their greatest expression in the lines of the face; but the limbs and even the flesh are permeated by this nervous expression to more observant eyes. Thus in the fragment called *The Torso*, it is this nervous life and mental power seen in the almost quivering quality of the flesh that gives it its effect. *Michael Angelo* appears to have had greater success in awarding this life to the limbs of his statues, than to their countenances; as, for instance, the face of the "*Christ holding the Cross*," is of a far lower type, than the life and energy expressed in the members would warrant. So with his Moses. The head has low qualities, fired out with the wrath of a low mind, instead of that of a high minded and inspired prophet; but there is a sign of tremendous mental energy given to the uncovered arms, which even seems to pierce the drapery of the body. As a contrast take Canova's Monument to Pope Clement XIII. in St. Peter's, and view the figure of the angel—beautiful, refined, pleasing in countenance, but lucklessly wholly devoid of nervous life in the frame, and, consequently, making a feeble impression. But look at the two crouching lions at her feet, and we see their bodies instinct with the highest energy, although in repose. Take the *Dying Gladiator.* With this, as with the Laocoön, the grand characteristic is the animation of the whole figure with nervous life and sensibility, without the expression of motion; but the head is of a type that could never have given such life to such a body. Compare with this the *Statue of Antinous* with its grace and flow of limbs; and mark how sadly deficient it is in interest because of a lack of sensibility and life in the flesh. So with the famous *Apollo.* Mr. Combe thinks that the limbs are so little imbued with living nervous power, as to make it, by no means, so above criticism as has generally been thought.

Mr. Combe's conclusions relative to the way in which this nervous life may be expressed in art, will be of interest to the practical artist. Physiologically, I should conjecture that the numerous nervous fibres which penetrate the muscles and the skin, when acted on by a large and vivacious brain, keep up in these a certain fine and delicate tension and flexion, which produce unevenness of surface, but so minute that it is not recognizable to the touch, although distinguishable to the eye. On examining the *Torso* and *Laocoön*, I observed minute elevations and depressions on the surface, which broke the reflection of the light, and prevented the eye from taking in long, smooth, uniform lines or masses of light; while the *Apollo*, and several other statues in which nervous expression of mental life is deficient, presented those long unbroken lines or masses. An eminent sculptor in Rome told me, that too high finishing in marble weakens the expression of life. In painting, also, a smooth surface of long unbroken lines is inexpressive; neither should the surface be like the polished skin of an apple, but more peach-like or creamy. In painting, color is also of some assistance in representing nervous life. Further, certain modifications of form and motion seem to be also necessary in the limbs, thorax, and abdomen, as well as in the face to express mental power.

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EGYPTIAN ART.—"It appears to me that the great and insurmountable obstruction to their advancement in art, arose out of the character and materials of their religion, where nothing was shown for itself, but as the symbol and type of some other thing, a practice that must soon be in opposition, and even in direct contradiction to the very essence and destination of Art."—*Barry.*

Technical.

A SUMMARY OF MODERN COLORS.

WITH THEIR

CHEMICAL AND ARTISTICAL QUALITIES.*

BY WILLIAM LINTON.

A SMALL portion of the following Summary was printed a few years ago. Since that period a more extensive and varied field for inquiry than had been previously accessible, displayed itself in the contributions of colors and dyes from almost every part of the globe to the Great Exhibition. These colors were chiefly arranged among the products of Class 2; and as the author attended their examination as Associate Juror, he has taken the opportunity of transferring to these pages such artistic information as the examination suggested.

Among the novelties brought forward by the Great Exhibition, was a large collection of native Indian Ochres (sent by the Honorable East India Company), of every variety of tint, from the Yellows and Browns common to the ochres of European districts, to the Pinks and Purple-Reds which are less known as pigments, and which are chiefly found in countries believed by geologists to be of an igneous origin. There were other collections of Ochres, also, from Canada and Trinidad. Several varied tints of Green Ultramarine were exhibited;—durable transparent colors, well adapted for the palette; among which was an excellent permanent substitute for Prussian and Antwerp Blue. There were many other mineral colors of great use and beauty; as Greens prepared from Zinc and Cobalt; a new bright Yellow, Chromate of Cadmium; a subdued Orange from Cerium; a Red from Palladium; a beautiful Rose Pink, and deep rich Purples of varied hues from Cobalt; a Brown from Iron; a new White from Lead (Pattinson's Oxichloride); and several more, of whose existence few had previously known. A series of beautiful Silicates from the Potteries. Various new colors made with Zinc; also rich and powerful glazing colors, chiefly Greens, Browns, and Yellows prepared with fatty acids; and an artificial Ultramarine Blue, of the prismatic hue, from Alsace, resembling the finest Lapis Lazuli, and responding to the same chemical tests;—an acquisition, of whose value may be formed, from the fact, that a fine quality of the native pigment, such as is usually sold in the shops at *five guineas* the ounce, was exactly matched by the above example, the manufacture of which (having been repeated with the most perfect success), would be amply remunerated at half that number of *pence* the ounce.

The decisions respecting the merits of the various colors have not been adopted without repeated experiments, both artistical and chemical; and when any difficulty presented itself in the latter mode of scrutiny, the advice and aid of scientific friends were always very kindly afforded.

PERMANENT COLORS.

WHITES.

ZINC WHITE. *Oxide of Zinc.*

THIS pigment (when properly manufactured†) is the only *permanent* White of any value to the artist. Although it is not so powerful in body as White Lead, it may be advantageously used in its place, or in covering and protecting the more solid tints of the lead preparations from the injurious action of sulphuretted hydrogen and other gases, by final paintings or scumblings, thereby preserving the original brilliancy of the painting.

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* Extracted from "Ancient and Modern Colors." London, 1852.

† It is sometimes adulterated with Carbonate of Lead.

The Sulphates of Baryta and Strontia, and perhaps the Oxide of Tin, may be considered as secure against the action of injurious gases; but since they are too feeble in body, as White pigments, to be of any service to the oil-painter, they have not been arranged in this list.

YELLOWS.

STRONTIAN YELLOW. *Chromate of Strontia.*

This color is produced by adding a solution of the Chromate of Potassa to one of the Chloride of Strontium. Its Yellow is of the true prismatic hue, and, although not so full in body as the Lead Yellows (the Chromates of Lead), the peculiarity of its tint, which is not found in the Yellow Oxides of Iron, will always recommend it where exceeding delicacy and brilliancy are required, either alone, or in mixture with White. Neither intense light, nor oil, nor the most powerfully active gases, have any effect upon the purity of its color. To produce a very fine tint of this chromate, Chromic Acid may be saturated by Strontia Water.

BARYTA YELLOW. *Chromate of Baryta.*

Prepared in the same manner as the above, substituting a salt of Barium for that of Chromium. It is very similar in tint. This pigment is sometimes called Lemon Yellow.

ZINC YELLOW. *Chromate of Zinc.*

This color is prepared by a similar process. Its tint is also of the same character.*

The Chromates of Tin are too feeble in body to be of any service to the painter. The Chromate of Protoxide of Tin is deep Brown; the Chromate of Peroxide of Tin is Yellow.

CADMIUM YELLOW. *Sulphuret of Cadmium.*

A combination of Cadmium and Sulphur; which has also, but very rarely, been found native. A rich Orange Yellow, of excellent body; an admirable addition to the palette.

CERIUM YELLOW. *Oxide of Cerium.*

An Orange Yellow, of a subdued tone, contributed to the English chemical department of the Great Exhibition, by Mr. Button.

YELLOW OCHRE.	*Native earthy compounds of Silica and Alumina, colored by Oxide of Iron.*
OXFORD ,,	
ROMAN ,,	
STONE ,,	
BROWN ,,	
INDIAN ,,	
RAW SIENNA.	

The Hydrated Oxides and Oxides of Iron constitute many of the staple colors of the palette. When properly washed and prepared for oil-painting, they are incapable of injuring other colors, and may be considered the soundest materials with which the chemistry of nature has furnished the painter for the imitation of her works. The Oxides of Iron (as Jaune de Mars,) which are produced by the chemist's art, are equally durable.

MADDER YELLOW. *A Vegetable Dye on an Earthy Base.*

The colors manufactured from the Madder Root have recently obtained so high a reputation for durability, among artists and even men of science, that their introduction among permanent pigments could scarcely be avoided. It may be as well to remark, however, that all Vegetable Colors, whether they are produced from flowers, leaves, roots, gums, or barks, should as a general, if not an exclusive rule, be looked upon with suspicion.

In deep rich glazings the evanescence of such colors will be less perceptible than when they are employed in thin coverings, or in tint with white or other pigmental diluents, by which the coloring matter is more thoroughly spread out, and exposed to the action of light.

REDS.

VERMILION. *Sulphuret of Mercury.*

Mercury and Sulphur sublimed together. The fine color is developed by a subsequent complicated process.

Vermilion, called Chinese, is not unfrequently made from Arsenic. Sulphurets are said by some chemists to injure other colors.

Cinnabar, or Native Vermilion, blackens in oil, and was believed by the ancient Romans (see Vitruvius, &c., in *Ancient Colors,*) to be injured by light.

INDIAN RED.	*Oxides of Iron.*
VENETIAN RED.	
COLCOTHAR.	
BURNT OCHRES, AS LIGHT RED, ETC.	

These colors possess the same durable characteristics as the Hydrated Oxides of Iron.

PURPLE OF CASSIUS. *The Oxides of Gold and Tin.*

A beautiful permanent color, but very expensive. Lilac and Crimson Silicates are made from Gold, and employed in the potteries, and for glass. They have not much body, but might, on account of their reputation for durability, be very acceptable to those artists who have little confidence in the Vegetable Lakes and Crimsons. Sir Humphrey Davy says, "It is worth while trying whether the beautiful Purple color given by the Oxide of Gold, cannot be made useful in painting, in a densely tinted glass."*

MADDER REDS. *Vegetable Dyes on Earthy Bases.*

The Madder Reds have similar properties to the Yellow and other colors of this root.

MINERAL LAKE. *Tin and Chromium*

A Lake or purple color, not powerful in body, but said to be permanent. Its tint resembles Madder Brown.

BLUES.

NATIVE ULTRAMARINE. *Prepared from Lapis Lazuli.*

Ultramarine essentially consists of Silica, Alumina, Soda, and Sulphur. It is regarded as a compound of Silicate of Alumina and Silicate of Soda, with Sulphuret of Sodium; and the color is thought by some to be entirely owing to the reaction of the latter on the two former constituents; while others believe that an infinitesimal portion of Iron, almost always found in combination with these bodies, has much to do in the development of the *Blue* tint of Lapis Lazuli.

ARTIFICIAL ULTRAMARINE. *A Chemical Production.*

An admirable and cheap substitute for the native color, when it can be obtained of the pure prismatic Blue tint, of which an excellent specimen from Rixheim appeared in the Great Exhibition.† The artificial Ultramarines prepared for the calico-printers, being of a Violet or Purple hue, are incapable of answering the purposes of the genuine Atmospheric Blue which the artist requires. The addition of Yellow to the ordinary Purple Ultramarine of commerce produces a neutral tint, as the Red, which the latter contains, unites with the Blue and Yellow to complete that negative color.

COBALT BLUE. *Silicate of Cobalt and Potassa.*

A beautiful color, but without the depth and body of Ultramarine.

Smalt.—Another form of the same color, is, like the Egyptian Blue, a colored glass. It has, of course, less body than Cobalt Blue.

Thenard's Blue.—Consists of Phosphate of Cobalt with Alumina.

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* The Yellows of Chrome and Zinc, and the Greens of Cobalt, were to be seen in several sections of the Exhibition, varying in the brilliancy and variety of their tints. Mr. Brown, of Pimlico, sent no less than twelve yellows, from a pale straw color (like Naples Yellow) to Canary and Orange Yellow. There was also a semi-opaque Brown among his Zinc colors, and a tint of Grey. Oxide of Zinc (Zinc White), was also sent from many countries, its density and brightness having been greatly improved during the last few years. These Zinc preparations resist the action of foul gases, and do not seem to be affected by light; but they are rather deficient in body, and dry slowly without aid. In all cases where permanency of tint is of more importance than the covering power, the colors of Zinc are to be recommended; but when the covering property or body of the paint is of the first consequence, as in the groundings or substrata of White, either the Carbonate of Lead, or Pattinson's Oxichloride of Lead is to be preferred. Of these lead preparations, the covering property possessed by the latter, when compared with that of the former, is estimated at 100 to 60.

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* *Colors of the Ancients.* The same author also says: "It is unfortunate that frits, or unalterable metallic combinations, have not been the only pigments employed by great artists," &c.; and, again, "The principle of the composition of Alexandrian Frit is perfect: a species of Lapis Lazuli, the coloring matter imbedded in hard silicious stone." Through the kindness of Dr. Layard, the author has taken many opportunities of testing this celebrated Silicate of Copper, Alexandrian or Assyrian Frit; and when thoroughly washed and pulverized, he has always found it turn green, and darken when mixed with oil; an evidence that vitrification does not render the color proof against chemical action. Mr. Field, in his *Chromatography*, says that Smalt (Royal Blue), another vitreous color, soon loses its beauty in oil, "as is no uncommon case with other vitrified pigments." And he elsewhere remarks, "that finely ground vitreous colors are subject to all the changes and affinities of the substances which compose them."

† Contributed by Zuber & Co.

Blue Ochre. *A Native Earth.*

Phosphate of Protoxide of Iron. Native Ochres of subdued Blue tints are found in various parts of the globe;—in England, Canada, Trinidad, &c.

GREENS.

Chromium Green. [*Sesquioxide of Chromium.*

An opaque Green, of a full body; an important accession to the palette. This pigment, which is made of different degrees of intensity, forms the coloring matter of the Emerald.

The Ultramarine Greens. *Chemical Preparations.*

These Greens are formed during the process of making Ultramarine; and are believed to be equally durable. The Great Exhibition furnished several tints of them. Among the darkest specimens was a permanent substitute for Prussian and Antwerp Blue, those useful but uncertain pigments. These colors are feeble in body, but well calculated for Blue Green glazings. Their money value, like that of the best Rixheim pure Blue Ultramarine, is too inconsiderable to check the most profuse employment of them.

Terre Verte. *Silicate of Protoxide of Iron, &c.*

Silicate of Protoxide of Iron, with Water, Potassa, and Magnesia. A deserved favorite with most painters. When calcined, it forms another beautiful pigment, called *Verona Brown.*

Zinc, or Cobalt Green. *Oxides of Zinc and Cobalt.*

This color, of which there were some good specimens in the Great Exhibition, appears to have more body than any of the other colors made with Zinc. England, Saxony, and Holland, displayed specimens. It resists change from oil, light, and foul airs. It is also called Rinman's Green.

BROWNS.

Umber. *An ore of Iron containing Manganese.*

An useful color, whether native or calcined; and possessing a strong drying property.

Vandyke Brown.
Cappah "
Rubens "
Cassel "
Cologne "
} *Decomposed Vegetable with Bituminous Matter*

Vandyke.—A deep transparent color in much use at the present day.

Cappah.—The best is deep, rich, and transparent. It is a Manganese Peat, and a strong drier; from Cappah, near Cork.

Rubens.—A native earth of an ochreous character.

Cassel.—A similar earthy Brown.

Cologne—An ochreous deep Brown color.

Manganese Brown. *A Dueloxide of Manganese.*

A deep semi-opaque color; an excellent dryer.

⁂ The opacity which pictures too often display in the darker colors after a lapse of time, is more owing, perhaps, to a loss of the light ground from negligent or repeated paintings, over which the deep shadows should be wrought, or to the poverty of the vehicle employed, than to any degradation in the Browns themselves. Tested rigidly, the tendency of these pigments is to bleach.

Asphaltum. *Bitumen.*

A rich transparent Brown, liable to crack without some unctuous or waxy accompaniment. A mineral pitch or resin, found floating on the Dead Sea; procured also in the distillation of Natural Naphtha.*

Mummy Brown. *Bituminous.*

White Pitch and Myrrh with animal matter. Another rich transparent Brown, less subject to crack than Asphaltum.

Madder Brown. *A Vegetable Dye, &c.*

This pigment has properties similar to the Reds and Yellows of Madder.

Other Browns.—Coarse Browns, Oxides of Copper as well as of Iron, of great durability, are made by the chemists, but they are not needed for Fine Art purposes.

BLACKS.

Ivory Black. *Carbonized Iron.*

Of a Brownish-Black tint.

Blue Black. *Carbonized Vegetable Matter.*

Burnt Vine twigs, Cocoa-nut shells, &c., furnish a Bluish-Black tint. Common Blacks mixed with uncertain Blues are sometimes substituted by empirics. Frankfort Black is made from the lees of wine; (the Blue Black of antiquity).

Bone Black. *Carbonized Bones.*

Of a Brownish-Black tint.

Manganese Black. *Peroxide of Manganese.*

A native product. It may be prepared artificially from the Nitrate, by exposing that salt to heat. It is a good drier.

Lamp Black. *Pure Carbon.*

A perfect Black, but a bad drier. The soot of burnt Resin and Turpentine. There are Black Ochres, native earths, but they are not now in use, nor are they required.

OBJECTIONABLE COLORS.

WHITES.

Flake White. { *Carbonate of Lead with Hydrated Oxide.*

This pigment is made by exposing plates of Lead to Vinegar-steam in beds of fermenting tan. It is blackened by Sulphuretted Hydrogen, by Hydrosulphuret of Ammonia, and other injurious gases, which are in a greater or less degree common to most domestic atmospheres; to protect it from which, a superstratum of Zinc White tints, or a rapidly drying vehicle of a firm and innocuous character, is requisite for the preservation of its brightness.* When free from adulteration (by Baryta, &c.), it is perfectly soluble in dilute nitric or acetic acid. Blanc d'Argent, Krems, Roman, Venetian, &c., Whites, are but other names for the same preparation.

YELLOWS.

Massicot. *Protoxide of Lead.*

Like the last-named pigment, from which it is derived, it blackens with foul air.

Chrome Yellow. *Chromate of Lead.*
and
Chrome Orange. *Subchromate of Lead.*

Prepared by decomposing the Nitrate or Acetate of Lead by the Chromate or Bichromate of Potash. These brilliant pigments, like all Lead colors, have a good body, but are injured by foul gases. The number of permanent bright Yellows now available render them unnecessary. Jaune Mineral is another objectionable color of the same class.

REDS.

Red Lead. *Red Oxide of Lead.*

Calcined Massicot: the Red Oxide of Lead, or Minium,—Carbonate of Lead decomposed by heat. This color blackens in oil.† Oils, in drying, absorb oxygen, both from the circumambient air and from the materials with which they may be combined, if the latter should contain oxygen. Used thinly in pictures, these drying oils become resinified throughout their substance. Metallic Oxides, which are employed as pigments, especially such as have little affinity for oxygen, are liable to part with it the more readily to a drying-oil (as linseed, nut, poppy, &c.), in its process of siccation, thereby darkening or restoring the pigment to its original metallic condition. Upon the same principle, the highly charged oxide, Litharge, by the aid of heat, gives out its oxygen to the drying-oil with which it is boiled, in order to further increase the siccative power of the Oil. Red Lead has has also the additional objection belonging to all *Lead colors*, viz., that of being liable to the injurious action of foul vapors.

Palladium Red. { *Ammonio-Perchloride of Palladium.*

A rich, powerful, and beautiful color, very slightly affected by sulphuretted hydrogen gas, and by oil.

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* "Fluid Bitumen is seen to ooze from the bottom of the sea, on both sides of the island of Trinidad, and to rise up to the surface of the water." "The frequent occurrence of earthquakes and other indications of volcanic action in those parts, lend countenance to the opinion, that these vegetable substances [woody, &c., bodies carried down rivers], may have undergone, by the agency of subterranean fire, those transformations and chemical changes which produce petroleum, and may, by the same causes, be forced up to the surface, where by exposure to the air, it becomes inspissated, and forms the different varieties of pure and earthy pitch, or asphaltum, so abundant in the island." —Lyell's *Elem. of Geol.*, p. 219; also Dr. Nugent, in *Geolog. Trans.*, vol. i.

* If oil be used in excess, the picture will degrade to a yellow or foxy hue; but when the White Lead is not overcharged with oil, its deoxidation becomes more evident, the color it assumes being that approximating to metallic lead itself. This may suggest to the artist the prudence of adopting a scale of color, which will enable him to charge his highest lights with hues whose warmth shall effectually conceal the unavoidable blackening of this pigment. Coloring so conducted, will, by time, result in that low-toned brightness which Reynolds admires:—cold White Lead must inevitably degrade to a slaty or leaden hue.

† "The greater number of fixed oils, by exposure to air, become viscid and rancid. In this state they contain free acid."—Professor Brande's *Elements of Chemistry.* See also Professor Tingry *On Varnishes.* The effect likely to be produced on colors by this uncombined acid may prove injurious.

GREENS.

Malachite. *A Native Carbonate of Copper.*

When a salt of Copper is precipitated by an alkaline Carbonate, a hydrated Dicarbonate is produced. Malachite is of this composition. The Ural Mountains and South Australia furnish abundant specimens to the Great Exhibition. It becomes greener and darker in oil.

Scheele's Green. *Arsenite of Copper.*

This color is acted upon by sulphuretted hydrogen gas, but does not change in oil to the same extent as the most delicate Greens of Copper.* Emerald Green is another bright Copper Green of similar properties. The less, however, these Greens of Copper are resorted to, the better. According to Montabert, the injuries to which they are subject, when in combination with oil, have no existence when in combination with wax or resin.

Gambogiate of Copper.—A rich Olive Green.

BROWNS.

Ivory and Bone Browns. *Bony Matter partially calcined.*

These colors are not considered so durable as when the process of calcination has been carried to its maximum, and the Browns have become carbonized, or changed into Blacks.

Prussian Brown. *Ferrocyanide of Copper.*

Prepared by the addition of the Yellow Prussiate of Potash to Sulphate of Copper. A rich Chocolate Brown, slightly affected by sulphuretted hydrogen gas, and totally destroyed by the alkaline solutions which are frequently used as abstergents in picture-cleaning.† Chromate of Potassa, with Sulphate of Copper, will yield a Brown of a similar color to that of Madder.‡

Prussian Blue, when calcined, becomes of a fine Brown color. It is troublesome to prepare for use, otherwise it is not an ineligible pigment for the artist.

Catechu Brown.—An exceedingly rich, transparent, and beautiful Brown (kindly prepared for the author from the Catechu bark, some years ago, by Dr. Lyon Playfair), would, when not too thinly applied, prove a most desirable addition to the Color List. When closely observed, even the so-called permanent Browns are all more or less liable to be deprived of their color by the action of light.

Gambogiate of Iron.—Dr. Scoffern read a paper at the meeting of the British Association of Science, in 1851, describing this combination as a rich Brown, like Asphaltum, being richer, as well as more durable, in oil. The Gum Resin is dissolved in ether and distilled.

REJECTED COLORS.

WHITES.

Bismuth, *Pearl*, *Antimony*, *Arsenic*, and *Mercury*, yield Whites, which are injured by foul airs and by light. They are too feeble in body for the palette.

Sulphate of Lead is equally useless in oil.

YELLOWS.

Naples Yellow.—This color is produced by an union of the Oxides of Lead and Antimony. It is readily affected by sulphuretted hydrogen gas, by light and by moist iron.

Turpith Mineral, or Subsulphate of Mercury, a rich Orange Yellow, is very rapidly blackened by light, the deoxidizing power of oil, and sulphuretted hydrogen gas.

Chromate of Mercury, a dull Orange Red, is also injured by light and alkalis.

Orange Orpiment or *Realgar*, and *King's* or *Chinese Yellow* (*Yellow Orpiment*), Sulphurets of Arsenic, are affected by light and injurious to other colors.

Patent Yellow, an Oxichloride of Lead: Lead and salt violently heated. It is injured by sulphuretted hydrogen gas.

Platinum Yellow, Ammonio-chloride of Platinum, a subdued Orange color; is destroyed by foul airs and darkened by light.

Oxide of Uranium, a new and very beautiful color; is deoxidized or darkened by light, though not affected by sulphuretted hydrogen gas.

Yellow of Iodide.—Davy says, "It is a beautiful color, and will last *several* MONTHS!"

Chromate of Cadmium, a bright Yellow, of good body and much beauty; darkens in oil.

Golden Sulphuret of Antimony; is injured by alkalis and oil.

Chromate of Tin, a bright Yellow; is powerfully degraded by oil.

Palladium Yellow, Ammonio-chloride of Palladium; is slightly blackened by foul air and oil, but is void of body, and almost useless as an oil-color.

Gamboge is reddened by alkalis, and bleached by light.

The Vegetable Yellows—Indian Yellow, Brown-Pink, &c. &c.,—belong to the most evanescent class of colors.

REDS.

Peroxide of Mercury, or Red Precipitate, is worthless, as it blackens by foul air and light, and is deoxidized by oil.

Iodide of Mercury is affected by sulphuretted hydrogen gas, and is changed and blackened by oil.

Phosphate of Cobalt; a beautiful Pink color, darkens in oil; and the pink hue disappears.

Dragon's Blood.—A resinous color from the East; it is enfeebled by exposure, but is not injured by foul airs.

The Vegetable Reds, Lakes, Cochineal, &c., are quickly discharged by exposure to light. Since the destruction of many colors by the action of light cannot be obviated by any selection of vehicle, the artist has no alternative but to reject them altogether.

BLUES.

Prussian Blue.—Both the ferro and ferrid cyanuret of the Peroxide of Iron, and Antwerp or Mineral Blue (the same color with Alumina), are subject to change from light, oil, alkalies, and other baneful influences. It is a rich and fascinating pigment to the colorist, but not to be depended upon; and yet difficult to avoid.

Indigo is inferior in color, and fades rapidly in the light.

Verditer, and all the *Copper Blues* are very unstable in oil, as they turn green and darken by deoxidation.

GREENS.

The Copper Greens.—The Arseniate, Phosphate, Carbonate, Disulphate, and Acetate of Copper, with Mineral Green, Verditer, and Verdigris Greens, are blackened by foul air, and deoxidized or darkened, and made greener, by oil.

Nickel Green, or Arseniate of Nickel, resists the action of foul airs, if pure, but turns greener and blackens in oil.

⁂ Montabert says, that Gamboge, Verdigris, Chrome Yellow, Minium, Massicot, Orpiment, Cendres bleues et vertes, Verona Earth (Terre Verte*), and all the oxides which are altered more or less by oils, are quite safe in wax vehicles.

Landscape Gardening.

THE MANSION.

NO I.

We have previously stated that the Ferme ornée style of gardening, partakes of the park-like as well as the farm-like characteristics; it is a style rapidly increasing in this country, probably from the fact that it affords personal enjoyment, with pecuniary profit, a combination worthy of great consideration.

The Mansion is the highest style of residence in this country. Its distinguishing characteristics are—large extent of grounds, rich spreading park scenery, varied with luxurious groups and masses of trees, in the midst of which stands the dwelling, a capacious and architectural edifice; uniform verdure everywhere, and the trees arranged in such manner as shall produce the maximum effect of breadth of light and shade.

In the Mansion there should be no abrupt union of the grounds with the house, but rather, if the building exhibits any traces of refined art, an easy and gentle transition, or melting of the one into the other. Art should always commence with the house, and blend it into the landscape in a graceful manner. Animated objects are especially to be desired in this style, as they give life and cheerfulness to the scene, and

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* Similar Greens and Blues are obtained by combining the oxides of Copper with fatty acids, as the Oleic and Elaidic. These Copper Oleates and Elaidates possess the same defects when mixed with oil, as the Arseniate, Acetate, Carbonate, &c., of Copper. But there are *permanent* transparent Oleates of much beauty, namely, a rich Brownish-Red color from Iron, a bright Yellow from Tin, a Buff-Yellow from Zinc, a Yellow also from Cadmium, and one from Manganese, which are well adapted for thin glazing colors. This process is the invention of Mr. Charles Humfrey. Specimens were arranged in the Chemical Department of the Great Exhibition.

† Alkalis decompose or destroy the materials used as vehicles in painting.

Oils are destroyed by Alkalis.

"Resins and Wax are decomposed only;—they may be recovered by Acids."—*Dr. Turner.*

‡ Peroxide of Uranium, with Ferrocyanuret of Potassium, gives a bright Brown also.

* Genuine Terre Verte is not a Copper Green, as would seem to be implied here, and is quite permanent in Oil.